

EMS REGION 5 SUSPECTED STROKE PROTOCOL

1. Stroke refers to any spontaneous damage to the brain caused by an abnormality of the blood supply by means of a clot or bleed. Strokes should be treated emergently. During a stroke, up to 2 million brain cells die every minute. For every hour a stroke continues, up to 200 million nerve cells die and the brain ages 4 years. Intravenous tPA (Activase / alteplase) should be given within 180 minutes of the onset of ischemic stroke, so do not delay transport and minimize scene time. It is recommended to limit scene time to 10 minutes. **TIME IS BRAIN!**
2. To facilitate accuracy in diagnosing stroke and to expedite transport, a rapid neurological examination tool is recommended. The most common prehospital exam used is the *Cincinnati Stroke Scale (CSS)*. One **new onset** positive sign on the CSS indicates a 72% probability of stroke. Three new onset positive signs on the CSS indicates a greater than 85% probability of stroke.

2.1. Cincinnati Stroke Scale:

2.1.1. **Facial Droop** (ask the patient to show their teeth or smile)

2.1.1.1. Normal – Both sides of the face move equally/symmetrically.

2.1.1.2. Abnormal – One side of the face does not move as well as the other.

2.1.2. **Arm Drift** (ask the patient to close their eyes and hold both arms out straight with palms up for 10 seconds).

2.1.2.1. Normal – Both arms move the same.

2.1.2.2. Abnormal – One arm turns over, drifts down compared to the other arm, or is flaccid.

2.1.3. **Speech** (ask the patient to say, “You can’t teach an old dog new tricks”)

2.1.3.1. Normal – The patient says the phrase correctly with no slurring/slowing of words.

2.1.3.2. Abnormal – The patient slurs words, uses the wrong words or is unable to speak.

2.1.4. **Time** (ask the patient/witness when the symptoms started)

2.1.4.1. **Time of Onset:** the time symptoms actually begin.

2.1.4.2. **Last Known Well Time:** the last time the patient was known to be without symptoms (asymptomatic).

2.2. Other symptoms associated with stroke (new onset):

2.2.1. Sudden and persistent alteration of consciousness/confusion.

2.2.2. Sudden severe headache (especially with vomiting and/or SBP > 220 mmHg)

2.2.3. Severe and/or sudden loss of balance

2.2.4. Decreased sensation of face, arms, or legs with unknown cause

2.2.5. Unequal grips

2.2.6. Vision disturbances

2.2.7. Sudden dizziness with other neurological symptoms

2.2.8. Ataxia with unknown cause

3. FIRST RESPONDER CARE:

First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing, and has a perfusing pulse as well as beginning treatment for shock.

3.1. Render initial care in accordance with Initial Medical Care system protocol.

3.2. **OXYGEN:** 2 - 6 L/min via nasal cannula if the patient has a patent airway and SpO₂ is >95% (if available). If SpO₂ is <95% (if available), administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient’s respirations with BVM if necessary and have suction readily available.

3.3. Check and record vital signs every 5 minutes until the transporting unit arrives

3.4. **ORAL GLUCOSE:** per appropriate approved system protocol.

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4. BLS CARE:

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing, and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

4.1. Render initial care in accordance with Initial Medical Care system protocol.

4.2. OXYGEN: 2 - 6 L/min via nasal cannula if the patient has a patent airway and SpO₂ is >95%. If SpO₂ is <95%, administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.

4.3. Initiate ALS intercept if possible and transport without delay.

4.4. Check and record vital signs and GCS every 5 minutes.

4.5. Obtain blood glucose level if available.

4.5.1. ORAL GLUCOSE: per appropriate approved system protocol.

4.6. Early Notification: Contact Medical Control to notify of possible stroke if CSS exam is positive (based on 1 or more new onset findings of the exam) and/or associated symptoms of stroke are present, including any clinical findings and time of onset of symptoms.

5. ILS/ALS CARE:

ILS/ALS care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

5.1. Render initial care in accordance with appropriate general patient assessment/initial medical care system protocol.

5.2. OXYGEN: 2 - 6 L/min via nasal cannula if the patient has a patent airway and SpO₂ is >95%. If SpO₂ is <95%, administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.

5.3. Perform blood glucose level test to rule out low blood sugar as a reason for ALOC.

5.4. Medications: per appropriate approved system protocol under the direction of Medical Control

5.4.1. GLUCOSE: for hypoglycemia

5.4.2. NARCAN: for suspected narcotic overdose

5.4.3. VALIUM: for seizures

5.4.4. ZOFRAN: for nausea

5.5. Cardiac Monitor

5.6. Check and record vital signs and GCS every 5 minutes.

5.7. Contact Medical Control if SBP \geq 220 mmHg or DBP \geq 110 mmHg

5.8. Early Notification: Contact Medical Control to notify of possible stroke if CSS exam is positive (based on 1 or more new onset findings of the exam) and/or associated symptoms of stroke are present, including any clinical findings and **time of onset of symptoms**.

6. CRITICAL THINKING ELEMENTS:

6.1. EMS personnel should ask family members or bystanders the **stroke symptom onset time** if the patient is unable to provide that information. Consider transporting a witness or obtaining witness' contact information.

6.2. Maintain the head/neck in neutral alignment. Elevate the head of the cot 30 degrees if the systolic BP is >100mmHg (this will facilitate venous drainage and help reduce ICP).

6.3. Be alert for airway problems (swallowing difficulty, vomiting/aspiration)

6.4. Bradycardia may be present in a suspected stroke patient due to increased ICP. DO NOT give Atropine if the patient's BP is normal or elevated.

6.5. Spinal immobilization should be provided if the patient sustained a fall or other trauma. Monitor and maintain the patient's airway.

6.6. 87% of strokes are ischemic and should be considered for tPA, while 13% of strokes are hemorrhagic.

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7. INTERHOSPITAL TRANSPORT GUIDELINES FOR CONFIRMED STROKE PATIENTS

7.1. tPA (Activase / alteplase) Transfers

7.1.1. Patients with a tPA infusion in progress must be accompanied by a Registered Nurse.

7.1.2. Patients that have completed a tPA infusion must be transported by an ILS/ALS ambulance.

7.1.2.1. It is preferred to complete tPA before transferring patient.

7.1.2.2. If the patient is unstable, it is recommended to transport with a Registered Nurse for neurologic-specific blood pressure management

7.2. Hemorrhagic Stroke Transfers

7.2.1. Keep head of cot elevated at least 30 degrees (if stable) and head positioned midline.

7.3. Vital Signs and Neurological checks every 15 minutes

7.3.1. Notify Medical Control immediately of

7.3.1.1. SBP > 180 mmHg

7.3.1.2. DBP > 105 mmHg

7.3.1.3. Deterioration in level of consciousness

7.3.1.4. Bleeding at any location

7.3.1.5. Severe headache